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WEAK OVERSEAS PROTECTION FOR AMERICAN SOFTWARE PATENTS: THE NEED FOR A CONGRESSIONAL RESPONSE TO MICROSOFT CORP. v. AT & T CORP.

Erika Danielle Norman*

“\textit{To ensure that we maintain our technological leadership, we must provide strong incentives for American firms to create and commercialize technology. One of the most important vehicles for providing such incentives is the patent system ... These patent incentives are strong only when the patent laws and procedures operate effectively.}”\textsuperscript{1}


I. Introduction

A recurring issue under American patent law\textsuperscript{2} is the extent to which a U.S. actor is liable as a patent infringer for supplying components of an invention, patented in the United States, for assembly abroad.\textsuperscript{3} Because governments create and protect patent rights, those rights cannot extend further than the geographical reach of the government’s power.\textsuperscript{4} However, determining *112 the reach of U.S. patent rights is complicated because commercial activities involving patented products frequently cross international boundaries.\textsuperscript{5}

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* J.D. Candidate, University of Oregon School of Law, 2009. Articles Editor, \textit{Oregon Law Review}, 2008-2009. I would like to thank Professor Jim Mooney for his wisdom and support. Thanks also to Professor SkinnerLopata for his insight and enthusiasm. Finally, I would like to thank my father, William Norman, for his love, encouragement, and counsel in this and in all of my endeavors.

1 S. 1535, 98th Cong. § 1, at 43 (1983) (statement of Donald W. Banner, President, Intellectual Property Owners, Inc.).


3 See Deepsouth Packing Co. v. Laitram Corp., 406 U.S. 518 (1972) (holding the export of all the parts to an infringing shrimp-deveining machine for assembly and use abroad did not constitute infringement of defendant’s patent); see also Radio Corp. of Am. v. Andrea, 79 F.2d 626 (2d Cir. 1935) (holding unassembled export of radio receivers and vacuum tubes for sale abroad did not infringe plaintiff’s patent on a radio receiver with a vacuum tube inserted into the radio receiver’s socket); Cold Metal Process Co. v. United Eng’g & Foundry Co., 235 F.2d 224 (3d Cir. 1956) (applying \textit{Andrea} to the manufacture of patented steel rolling mills abroad from parts supplied from the United States); Hewitt-Robins, Inc. v. Link Belt Co., 371 F.2d 225 (7th Cir. 1966) (applying \textit{Andrea} to the manufacture of patented ore bedding and reclaiming devices abroad from parts supplied from the United States).


5 \textit{Id.} at 11-16-11-17.
35 U.S.C. § 271(f) provides that where an invention patented in the United States is constructed abroad without the consent of the U.S. patent holder, a party within the United States contributing to the infringement may be liable if the combination of the invention’s “components” abroad would infringe the patent had the combination occurred within the United States.  

Section 271(f)(1) addresses circumstances where the U.S. party supplies all or a substantial portion of the U.S. patented invention’s components that are combined abroad.  

Section 271(f)(2) addresses circumstances where the U.S. party supplies only one component of a U.S. patented invention that is combined abroad.  

In 2001, AT & T sued Microsoft for infringement under § 271(f). AT & T alleged that Microsoft had infringed AT & T’s patent on a speech-processing computer by supplying its Windows operating system software to foreign computer manufacturers, who installed copies of it on computers made abroad.  

Microsoft admitted that installing Windows on a computer allowed the computer to operate as AT & T’s patented speech processor.  

Thus, Microsoft conceded liability for domestic infringement under §§ 271(a) and (b). However, Microsoft argued that it was not liable for foreign infringement under § 271(f) because it did not supply any *U.S. components of the computers manufactured abroad; it supplied only CD-ROMs (“golden master” disks) and electronic
transmissions containing Windows from which copies were made abroad.\textsuperscript{13} Microsoft contended that because foreign computer manufacturers copied Windows abroad from CD-ROMs or electronic transmissions, only \textit{copies} of the infringing software were installed on foreign-made computers.\textsuperscript{14} Consequently, Microsoft argued it had not supplied any U.S. components of the infringing computers made abroad.\textsuperscript{15}

The District Court for the Southern District of New York ruled that computer software code itself, like the Windows object code\textsuperscript{16} contained on the golden master disks supplied from the United States, qualified as a component under § 271(f).\textsuperscript{17} The Court of Appeals for the Federal Circuit affirmed.\textsuperscript{18} Reversing, the Supreme Court accepted Microsoft’s argument and ruled that the Windows object code contained on the golden masters was not a component within the meaning of § 271(f).\textsuperscript{19}

Following the Supreme Court’s ruling in \textit{Microsoft Corp. v. AT & T Corp.}, the current language of § 271(f) precludes treating software, such as the Windows object code at issue in \textit{Microsoft}, as a “component.”\textsuperscript{20} As a result, current § 271(f), as interpreted by the Supreme Court, leaves U.S. software patent holders unprotected against the exploitation of their patented technologies abroad.\textsuperscript{21}

This Note contends that Congress’s purpose in enacting § 271(f) was broader than the Supreme Court’s interpretation of the current statutory language suggests. Consequently, to fully \textbf{*114} protect the U.S. software industry, in a manner consistent with

\textsuperscript{13} \textit{Id.} at *1.
\textsuperscript{14} \textit{Id.} at *2.
\textsuperscript{15} \textit{Id.}
\textsuperscript{16} \textit{See} text accompanying note 82 for an explanation of object code.
\textsuperscript{17} \textit{AT & T Corp. v. Microsoft Corp.}, No. 01 Civ. 4872, 2004 WL 406640, at *4 (S.D.N.Y. Mar. 5, 2004).
\textsuperscript{18} \textit{AT & T Corp. v. Microsoft Corp.}, 414 F.3d 1366, 1368-69 (Fed. Cir. 2005), rev’d 127 S.Ct. 1746 (2007).
\textsuperscript{19} \textit{Microsoft Corp. v. AT & T Corp.}, 127 S.Ct. 1746, 1755-56 (2007).
\textsuperscript{20} \textit{See} 35 U.S.C. § 271(f).
\textsuperscript{21} \textit{See Microsoft}, 127 S.Ct. 1746 (2007); \textit{see also} § 271(f).
the policy behind Congress’s enactment of § 271(f), a legislative fix is needed. Specifically, Congress should amend § 271(f) so that software object code qualifies as a component under the statute.

Part I sets forth the legal background of § 271(f), including its application prior to the Supreme Court’s ruling in Microsoft. Part II examines the facts of Microsoft and analyzes the district court and Supreme Court rulings. Part III then addresses the implications of the Supreme Court’s decision for the U.S. software industry and proposes a legislative response to Microsoft to effectuate the broad policy behind Congress enacting § 271(f) in 1984.

II. The Legal Background

A. The 1984 Enactment of § 271(f)

Section 271(f) was enacted in 1984 as a legislative response to the Supreme Court’s decision in Deepsouth Packing Co. v. Laitram Corp., 406 U.S. 518 (1972). 22 In Deepsouth, Laitram Corp. alleged that Deepsouth Packing Co.’s manufacture of shrimp-deveining machines in the United States under its patent infringed Laitram’s own U.S. patent on a shrimp-deveining machine. 23 The district court held that Laitram had the superior patent claim and that Deepsouth’s manufacturing activity constituted infringement of Laitram’s patent and thereupon enjoined Deepsouth from using and

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Deepsouth moved to modify the injunction to clarify that the injunction did not prohibit Deepsouth from exporting all of its machine components for assembly and use outside the United States. The District Court for the Eastern District of Louisiana agreed to modify the injunction. The Fifth Circuit Court of Appeals later reversed and the U.S. Supreme Court granted Deepsouth’s certiorari petition.

Deepsouth argued before the Supreme Court that the Patent Act of 1952 barred it only from manufacturing and selling its infringing deveining machine in the United States. The Court held that Deepsouth was not liable for infringement of Laitram’s patent because it neither made, sold, or used the fully assembled patented deveining machine within the United States, nor actively induced infringement within the United States. Nothing in the Patent Act of 1952 expressly prohibited Deepsouth from making all of its deveiner parts in the United States and then selling those parts as a kit to foreign buyers who assembled the parts and used or sold the machines abroad. The Court stated that in the absence of a “clear congressional indication of intent” the district court could not enjoin Deepsouth from manufacturing and selling the parts of Laitram’s patented machine for

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24 Id. at 1066.
25 Id.
27 Id.
31 Id. at 532.
assembly and use abroad.\textsuperscript{33}Congress responded to \textit{Deepsouth} by amending § 271 to expand infringement to include supplying component(s) of an invention patented in the United States for assembly abroad.\textsuperscript{34} \textbf{*116} Section 271(f)(1) prohibits an actor within the United States from supplying or causing to be supplied in or from the United States, without authority from the patent holder, “all or a substantial portion of the components of a patented invention.”\textsuperscript{35} Paragraph (f)(1) applies to components “uncombined in whole or in part.”\textsuperscript{36} The actor supplying components under (f)(1) must do so “in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States.”\textsuperscript{37}

Section 271(f)(2) prohibits an actor within the United States from supplying or causing to be supplied in or from the United States, without authority from the patent

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\item \textsuperscript{33} \textit{Deepsouth}, 406 U.S. at 532. The Supreme Court in \textit{Microsoft Corp. v. AT & T Corp.} commented on this portion of the \textit{Deepsouth} opinion: “Our patent system makes no claim to extraterritorial effect; these acts of Congress do not and were not intended to, operate beyond the limits of the United States; and we correspondingly reject the claims of others to such control over our markets.” \textit{Microsoft Corp. v. AT & T Corp.}, 127 S.Ct. 1746, 1752 (2007) (quoting \textit{Deepsouth}, 406 U.S. at 531). The Court in \textit{Microsoft} seemed troubled by what it saw to be “the expanded extraterritorial thrust AT & T’s reading of § 271(f) entails,” and ultimately left it to Congress as did the Court in \textit{Deepsouth} to mark the Court’s course in that area. \textit{See Microsoft}, 127 S.Ct. at 1760.
\item \textsuperscript{34} This legislative development in patent law has been criticized for extending the scope of protection of U.S. patents extraterritorially. MOY, \textit{supra} note 4, at 12-28. Such concerns over the extraterritorial reach of § 271(f) seemed to influence the majority opinion in \textit{Microsoft}. \textit{See Microsoft}, 127 S.Ct. at 1746. The Court in \textit{Microsoft} relies on \textit{F. Hoffmann-La Roche Ltd. v. Empagran S.A.} for its holding that § 271(f) cannot be interpreted so as to give the statute extraterritorial effect because the Court should “assume that legislators take account of the legitimate sovereign interests of other nations when they write American laws.” \textit{Id.} at 1758 (quoting \textit{F. Hoffmann-La Roche}, 542 U.S. 155, 164 (2004)). Other commentators have taken the position that while the overall effect of § 271(f) is to allow patent owners to exert some control over commercial activities occurring abroad, these patent owners do so by focusing on the accused infringer’s activities within the United States. \textit{See, e.g.}, MOY, \textit{supra} note 4, at 12-28.
\item \textsuperscript{35} 35 U.S.C. § 271(f)(1). Section 271(f)(1) reads:
\begin{quote}
Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.
\end{quote}
\item \textsuperscript{36} \textit{Id.}
\item \textsuperscript{37} \textit{Id.}
\end{itemize}
holder, “any component of a patented invention.” Paragraph (f)(2) also applies to components “uncombined in whole or in part.” The actor supplying a component under (f)(2) must have knowledge that the component is “especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use” and must intend that the component “be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States.”

Sections 271(f)(1) and (f)(2) are identical in several respects. Both require the infringer to act “without authority” from the patent holder. And, the prohibited act of supplying or causing to be supplied is the same under both paragraphs. Both (f)(1) and (f)(2) require the supplying act to be “in or from the United States” and the component(s) supplied to be “uncombined in whole or in part.” Finally, (f)(1) and (f)(2) require that the combining of the component(s) abroad be done “in a manner that would infringe the patent if such combination occurred within the United States.”

However, important differences between (f)(1) and (f)(2) exist. Under (f)(1), the supplier must supply “all or a substantial portion of the components of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial non-infringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.”

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38 35 U.S.C. § 271(f)(2). Section 271(f)(2) reads: Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.
39 Id.
40 Id.
42 Id.
43 Id. Courts have interpreted this phrase to require that the components at issue actually be manufactured in the United States. See, e.g., Rotec Indus., Inc. v. Mitsubishi Corp., 215 F.3d 1246, 1260 (Fed. Cir. 2000).
44 § 271(f).
45 Id.
invention,” whereas under (f)(2), the supplier need only supply “any component.” In addition, (f)(2) requires that the supplied component be “especially made or especially adapted for use in the invention and not be a staple article or commodity of commerce suitable for substantial non-infringing use,” that the actor have knowledge that the component is so made or adapted, and that the actor intend the component be combined abroad “in a manner that would infringe the patent if such combination occurred within the United States.”

*118 B. Status of § 271(f) as Applied to the Software Industry Before Microsoft

Most court decisions addressing § 271(f) before Microsoft Corp. v. AT & T Corp. involved components of mechanical inventions or chemical compounds. Courts were generally unwilling to apply § 271(f) to design or method patents seemingly because

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48 § 271(f)(2).
50 See, e.g., W.R. Grace & Co.--Conn. v. Intercat, Inc., 60 F.Supp.2d 316, 319 (D. Del. 1999) (applying 35 U.S.C. § 271(f) to patented chemical compounds used to reduce emissions in oil refining and similar processes); Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., No. 95 Civ. 8833, 2001 U.S. Dist. LEXIS 16895, at *8-9 (S.D.N.Y. Oct. 18, 2001) (applying § 271(f) to a chemical compound produced in New York and then combined with another chemical compound in Ireland to produce the alleged infringing cancer chemotherapeutic drug). Perhaps as a result of the lack of case law addressing § 271(f), as recently as in 2000, one commentator suggested that the statute serves little purpose at all. FISCH & ALLEN, supra note 22, at 567 (citing Timothy F. Myers, Foreign Infringement of Business Methods Patents, 7 WILLAMETTE J. INT’L L & DISPUTE RES. 101, 109 (2000)).
51 A design patent may be obtained on surface ornamentations, configurations, or both. 1 DONALD S. CHISUM, CHISUM ON PATENTS § 104 (2003). A method patent may be obtained on novel techniques that perform a commercial function and which technique is not embodied in a specific invention. FISCH & ALLEN, supra note 22, at 570-71.

8 Chi.-Kent J. Intell. Prop. 111
those patents appear to lack the requisite components.52

The District Court for the Eastern District of Virginia in Imagexpo L.L.C. v. Microsoft Corp.53 was the first to apply § 271(f) in the context of computer software code.54 Imagexpo L.L.C. alleged that Microsoft’s NetMeeting software that Microsoft exported overseas via master disks infringed Imagexpo’s software patent.55 Microsoft filed a motion in limine to prevent Imagexpo from presenting evidence of foreign-made computers containing copies of the allegedly infringing NetMeeting software code made from master disks that Microsoft had shipped abroad.56 Microsoft asserted that the NetMeeting software code it supplied from the United States was not a component under § 271(f).57 Judge Hudson of the Eastern District of Virginia concluded that the master disks Microsoft supplied to its overseas representatives, as well as the NetMeeting software code that they contained, were components within the meaning of § 271(f), and therefore denied Microsoft’s motion.58

Microsoft also lost on similar facts in Eolas Technologies, Inc. v. Microsoft Corp., where Eolas Technologies, Inc. alleged that aspects of Microsoft’s software program, Internet Explorer, incorporated Eolas’s patented software invention.59 Microsoft filed a pretrial motion to bar Eolas from seeking damages for the production and sale abroad of

54 FISCH & ALLEN, supra note 22, at 584.
56 Id.
57 Id. at 552-53.
58 Id. As a result, the jury was permitted to award damages to Imagexpo based on the fact that copies of the NetMeeting software originally supplied by Microsoft from the United States were installed on foreign-made computers. Id. at 553.
59 Eolas Techs., Inc. v. Microsoft Corp., 399 F.3d 1325 (Fed. Cir. 2005). Essentially, Eolas’s claimed software invention “allows a user to use a web browser in a fully interactive environment ... to view news clips or play games across the internet.” Id. at 1328.

8 Chi.-Kent J. Intell. Prop. 111
computers with hard drives containing copies of Internet Explorer made from a master disk shipped from the United States.\(^6^0\) As in Imagexpo, Microsoft argued in Eolas that its Internet Explorer software code contained on the master disks did not constitute a component under § 271(f).\(^6^1\) Judge Zegel of the Eastern District of Illinois held that the software code was an “operating element” of the infringing device and thus a “component” for purposes of § 271(f)—not, as Microsoft argued, a mere “recipe” or “template.”\(^6^2\) The Court of Appeals for the Federal Circuit affirmed, holding that the term “component” under § 271(f) included software code contained in master disks.\(^6^3\)

*120* Although both Imagexpo and Eolas addressed how § 271(f) applied to computer software, the cases did not address adequately, as stated by the Supreme Court in Microsoft Corp. v. AT & T Corp., whether software in the abstract (object code), a tangible copy of software, or both, were components under § 271(f).\(^6^4\) AT & T argued that the

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\(^6^1\) Id. at *5.

\(^6^2\) Id. at *4-5. Judge Zegel compared the facts of Eolas to a case in which “defendants sent chemical products abroad that were combined with other compounds into compositions that would have infringed a U.S. patent had the combination occurred [in the United States].” Id. at *4-5. Microsoft later unsuccessfully moved reconsideration, claiming the Federal Circuit’s decision in Bayer AG v. Housy Pharms. had overruled Judge Zegel’s ruling. Eolas Techs., Inc. v. Microsoft Corp., No. 99C0626, 2004 U.S. Dist. LEXIS 534, at *14 (N.D. Ill. Jan. 14, 2004). See Bayer, 340 F.3d 1367, 1373-78 (Fed. Cir. 2003) (dismissing patent infringement counterclaim under 35 U.S.C. § 271(g) against drug company that used information it received from the defendant’s patented process to make its own drugs and finding § 271(g) to cover only infringement through the manufacture of physical goods and not the supply of information generated by a patented process). Judge Zegel rejected Microsoft’s arguments for reconsideration in Eolas: At the heart of Microsoft’s argument is its assertion that the source code contained on the ‘golden master’ is merely intangible information ... I disagree. The source code contained on the ‘golden master’ is not intangible information, but instead a real and substantial part of the final product. Because I find that the source code present on the ‘golden master’ is not intangible information, Bayer does not affect my decision. Eolas, 2004 LEXIS 534, at *14. The question of whether source code can qualify as a component under 35 U.S.C. § 271(f) was not addressed by the Court in Microsoft Corp. v. AT & T Corp. See infra p. 20. Object code, at least in the context presented by the facts of the case, cannot qualify as a component under § 271(f). See Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1755-56 (2007).

\(^6^3\) Eolas Techs., Inc. v. Microsoft Corp., 399 F.3d 1325, 1341 (Fed. Cir. 2005).

\(^6^4\) Microsoft, 127 S.Ct. 1746. “The Federal Circuit panel in this case, relying on that court’s prior decision in [Eolas], held that software qualifies as a component under § 271(f). We are unable to determine, however, whether the Federal Circuit panels regarded as a component software in the abstract, or a copy of software.” Id. at 1754 n.10.
Windows object code contained on the master disks that Microsoft supplied from the United States abroad was a component because the object code became part of the computers sold to end users abroad. Under facts similar to those in Imagexpo and Eolas, the Microsoft Court held that the object code was more like a set of instructions, like those at issue in Pellegrini v. Analog Devices, Inc., than a component. In Pellegrini, the Court of Appeals for the Federal Circuit held that supplying instructions from the United States for the manufacture abroad of infringing computer chips did not implicate § 271(f). According to Pellegrini, instructions to construct and combine certain components to form a patented invention are not themselves components of the invention.

*121 III. The Microsoft Case

A. The Facts of Microsoft

AT & T held a patent on an apparatus that generated and received coded speech signals from audible voice sounds and converted them back into audible voice sounds. AT & T’s patent is infringed when a computer is loaded with a speech codec that allows the computer to function as AT & T’s patented speech processor. Microsoft conceded that a computer loaded with Windows is capable of coding and decoding speech in a

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65 Id. at 1755.
67 Microsoft, 127 S.Ct. at 1755.
68 Pellegrini, 375 F.3d at 1117-19.
69 Id.
70 Brief for the Respondent, Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746 (2007), at 7-8 (No. 05-1056).
72 Microsoft, 127 S.Ct. at 1750.
manner that “practices” AT & T’s patent.73

AT & T repeatedly requested that Microsoft obtain a license to use AT & T’s patented speech-processing technology, but Microsoft continually refused.74 Eventually, AT & T sued Microsoft for patent infringement.75 Microsoft stipulated that it made infringing devices in the United States, violating § 271(a)76 when it installed Windows on its own computers to develop, test, and debug the software.77 Microsoft also stipulated to liability under § 271(b)78 by sending Windows to U.S.-based computer manufacturers with the intent that they install the software on computers made within the United States.79

The principal issue in the litigation became whether Microsoft was liable under § 271(f) for supplying U.S.-made components of AT & T’s invention for combination abroad.80

*122 The relevant facts of Microsoft were summarized as follows: Microsoft “conceives, writes, compiles, tests, debugs, and creates” a master version of Windows in Redmond, Washington.81 Microsoft then makes a limited number of what it calls “golden master” disks by first developing a source code, the “human readable form of the software”; next, it puts the source code through a compiler that transforms the source code into object code, a series of ones and zeros that can be read by a machine.82 Thereafter, it burns the object code onto the golden master disks using a laser.83 Finally, Microsoft ships a number of these golden masters abroad to foreign-based computer manufacturers known

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73 Id. See supra note 10 and accompanying text.
74 Brief for the Respondent, supra note 70, at 9.
75 Id.
76 See supra note 11 and accompanying text.
77 Brief for the Respondent, supra note 70, at 9.
78 Id. at 10.
79 Brief for the Respondent, supra note 70, at 9.
80 Id.
82 Id.
83 Id. For a physical description of the golden master disks, see Microsoft Corp. v. Comm’r Internal Revenue, 311 F.3d 1178, 1181, 1187 (9th Cir. 2002).
as “original equipment manufacturers,” or “OEMs.”\textsuperscript{84} Each foreign OEM has a licensing agreement with Microsoft, under which it copies abroad Windows from the golden master and thereafter installs the foreign-made copies onto computers made abroad.\textsuperscript{85} Microsoft also sends golden master disks to foreign-based “replicators” which are authorized by Microsoft to make copies of Windows and thereafter to ship those copies to foreign computer manufacturers.\textsuperscript{86} The golden master disks that Microsoft supplies from the United States are themselves never installed on the computers made abroad.\textsuperscript{87} Microsoft also supplies Windows to foreign OEMs and authorized replicators by sending them an encrypted transmission of the software.\textsuperscript{88} Upon receiving the transmission abroad, the OEMs \textsuperscript{*123} and authorized replicators decrypt it and then install copies of Windows on computer hard drives that become part of computers sold abroad.\textsuperscript{89}

Microsoft admitted that it exported Windows with the knowledge and intent that it would be copied by foreign OEMs and replicators and then installed on computers manufactured abroad.\textsuperscript{90} All computer systems manufactured abroad containing Windows were sold to consumers abroad and were not for use in the United States.\textsuperscript{91}

\begin{footnotesize}
\begin{footnote}{84} AT & T Corp. v. Microsoft Corp., No. 01 Civ. 4872, 2004 WL 406640, at *1 (S.D.N.Y. Mar. 5, 2004).
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\begin{footnote}{85} Id.
\end{footnote}
\begin{footnote}{86} Id.
\end{footnote}
\begin{footnote}{87} Id.
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\begin{footnote}{88} Id. The Supreme Court in Microsoft held that neither the Windows object code contained on the golden master disks nor the code contained in the electronic transmissions constituted a component under 35 U.S.C. § 271(f), but at oral argument, the Court focused their questions primarily on the golden masters. \textit{See generally} Transcript of Oral Argument, Microsoft Corp. v. AT & T Corp., 2007 WL 541886 (No. 05-1056). Justice Scalia remarked that the term “golden disk” possessed a certain “Scheherazade quality that really add[ed] a lot of interest to [the] case.” \textit{Id.} at *40.
\end{footnote}
\begin{footnote}{89} AT & T Corp. v. Microsoft Corp., No. 01 Civ. 4872, 2004 WL 406640, at *1 (S.D.N.Y. Mar. 5, 2004).
\end{footnote}
\begin{footnote}{90} Id.
\end{footnote}
\begin{footnote}{91} Id. Except for an action under § 271(f), AT & T would have needed to bring an action under foreign patent laws to stop the infringement of its ’580 patent abroad. \textit{See} Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1759 (2007).
\end{footnote}
\end{footnotesize}
B. The Lower Court Opinions

Microsoft made two arguments to the District Court for the Southern District of New York.\footnote{Microsoft, 2004 WL 406640, at *4.} Microsoft first argued that Windows object code is not a component under § 271(f).\footnote{Id. at *6. For this argument, Microsoft relied heavily on Bayer AG v. Housy Pharms., where the Federal Circuit had stated in dicta that the term “component” under 35 U.S.C. § 271(g) (2000) “appears to contemplate a physical product.” Id. (quoting Bayer, 340 F.3d 1367, 1376-77 (Fed. Cir. 2003)). The district court in Microsoft found Microsoft’s reliance on Bayer to be misplaced because Bayer is only applicable to 35 U.S.C. § 271(g) and the “data processing” that resulted from a patented process in Bayer was wholly unrelated to the Windows object code at issue in Microsoft. Microsoft, 2004 WL 406640, at *6. See supra pp. 8-9.} The district court responded by citing Imagexpo,\footnote{See supra p. 9.} Eolas,\footnote{Microsoft v. Commissioner of Internal Revenue, 311 F.3d 1178, 1185 (9th Cir. 2002). In Microsoft v. Comm’r of Internal Revenue, (the “Tax Case”), Microsoft argued successfully that its golden master disks were export property for tax purposes under 26 U.S.C. § 927(a)(2)(B) (2000). Id. Excluded from export property are “patents, inventions, models, designs, formulas, or processes[,] whether or not patented, copyrights (other than films, tapes, records, or similar reproductions, for commercial or home use), good will, trademarks, trade brands, franchises, or other like property.” 26 U.S.C. §§ 993(c)(2)(B), 927(a)(2)(B) (emphasis added). In the Tax Case, the Court of Appeals for the Ninth Circuit found Microsoft’s golden masters to constitute “similar reproductions” to “films, tapes, records” and therefore to constitute “export property.” Microsoft v. Comm’r, 311 F.3d at 1185. The district court in AT & T Corp. v. Microsoft Corp., (the “Patent Case”), suggested that it was because of the outcome of the Tax Case that Microsoft retreated from its earlier argument that software must be in a tangible form to constitute a component in its reply brief and at oral argument. AT & T Corp. v. Microsoft Corp., No. 01 Civ. 4872, 2004 WL 406640, at *4 (S.D.N.Y. Mar. 5, 2004). The district court in the Patent Case seems to mischaracterize the holding of the Tax Case. If anything, the outcome of the Tax Case helps Microsoft in its patent litigation with AT & T. This is because the Ninth Circuit in the Tax Case interpreted the relevant sections of the Internal Revenue Code to mean that intangibles, such as copyrighted software, are not export property, unless they are reduced to a tangible medium of expression, such as to “films, tapes ... etc.” Microsoft v. Comm’r, 311 F.3d at 1183. Microsoft was not arguing that the Windows object code was export property, Microsoft was arguing that golden masters containing the object code were export property. Id. The Court of Appeals affirmation of Microsoft’s argument in the Tax Case is analogous to the Supreme Court’s affirmation of this argument in the Patent Case that the object code contained on the golden master disks was not a component, but that only the disks themselves containing the code were components. See Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1755 (2007).} and Microsoft v. Commissioner of Internal Revenue,\footnote{Microsoft v. Comm’r, 311 F.3d 1178, 1185 (9th Cir. 2002).} in support of its proposition that software in the abstract, like the Windows object code contained on the master disk, may be a component of a patented invention.\footnote{AT & T Corp. v. Microsoft Corp., No. 01 Civ. 4872, 2004 WL 406640, at *4 (S.D.N.Y. Mar. 5, 2004).} The court noted that excluding software inventions from § 271(f)’s protection “would not be responsive to the challenges of a changing world” as software and
computers have become an essential part of society and business since the enactment of § 271(f).”

Next, Microsoft argued that foreign-made copies of Windows were not components “supplied from the United States.” In response, the district court held that Microsoft should not be shielded from the “letter and intent” of § 271(f) just because, for efficiency sake, it exported a handful of master disks and electronic transmissions for copying abroad. The district court was similarly unreceptive to Microsoft’s policy argument that if § 271(f) applied to Windows object code, software companies (including Microsoft) would manufacture their golden master disks abroad. Responding, the district court suggested that instead of manufacturing their golden master disks abroad, Microsoft could manufacture non-infringing devices within the United States or lobby Congress to amend § 271(f).

Based on the district court’s holdings, Microsoft entered into a settlement agreement with AT & T whereby Microsoft stipulated to a judgment of infringement under § 271(a) and (b) for its activities within the United States, but preserved its right to appeal the district court decision with respect to the application of § 271(f) to the golden master disks shipped abroad.

Microsoft appealed to the Court of Appeals for the Federal Circuit and argued that it had not supplied any components of the computers manufactured abroad that allegedly

99 Id. at *5 (quoting Patent Act of 1984, H.R. 6286, 98th Cong. § 1 (1984)).
100 Microsoft, 2004 WL 406640, at *4.
101 Id. at *7.
102 Id. at 1370.
103 Id.
104 Brief for the Respondent, supra note 70, at 11. The settlement agreement prescribed different dollar amounts that Microsoft must pay to AT & T depending on the outcome of Microsoft’s appeal. Id.

8 Chi.-Kent J. Intell. Prop. 111
infringed AT & T’s patent.\textsuperscript{105} The court of appeals handed down its \textit{Eolas} decision while Microsoft’s appeal in its case with AT & T was pending.\textsuperscript{106} The court of appeals interpreted its own decision in \textit{Eolas} to mean that Windows object code could constitute a component under § 271(f).\textsuperscript{107}

The court of appeals answered the remaining question of whether software replicated abroad from a master disk supplied from the United States, as intended by the software’s exporter, is “supplied from the United States” under § 271(f).\textsuperscript{108} In the software context, the court said that “supplying” software often involves generating a copy of that software.\textsuperscript{109} Further, in the case of software components under § 271(f), “the act of copying is subsumed in the act of ‘supplying,’ such that sending a single copy abroad with the intent that it be replicated invokes § 271(f) liability for those foreign-made copies.”\textsuperscript{110} The court of appeals stated that it was interpreting § 271(f) by giving the statute’s words “‘their ordinary, contemporary, common meaning,’ … which is necessarily context-dependent.”\textsuperscript{111}

The court of appeals also held that the law should take into account the realities of the business practices underlying a particular litigation--in this case, the efficiency with which *126 Microsoft can supply one master disk for replication abroad.\textsuperscript{112} Further, according to the court, to allow a “technical avoidance” of § 271(f) by Microsoft would subvert the remedial purpose of the statute, namely to stop a copier from circumventing

\textsuperscript{105} AT & T Corp. v. Microsoft Corp., 414 F.3d 1366, 1368-69 (Fed. Cir. 2005).
\textsuperscript{106} Id.
\textsuperscript{107} Id. at 1369.
\textsuperscript{108} Id. at 1369-70.
\textsuperscript{109} Id. at 1370.
\textsuperscript{110} Id.
\textsuperscript{111} Id. (quoting Williams v. Taylor, 529 U.S. 420, 431 (2000)).
\textsuperscript{112} Microsoft, 414 F.3d at 1371. “[T]he appellate process is not a mere academic exercise.” Id. (quoting Rosemount, Inc. v. Beckman Instruments, Inc., 727 F.2d 1540, 1543 (Fed. Cir. 2004)).
U.S. patents by supplying components of an invention patented in this country for assembly abroad. Microsoft appealed the Federal Circuit’s decision and the Supreme Court granted Microsoft’s certiorari petition.

C. The Opinion of the United States Supreme Court

The question before the Supreme Court was whether Microsoft’s liability for patent infringement extended to computers made abroad that were loaded with Windows software that had been copied abroad from a master disk or from an electronic transmission supplied by Microsoft from the United States. To resolve this broad question, the Court examined two issues: first, whether the Windows object code contained on the golden master disks qualified as a component under § 271(f); and second, whether any components of the foreign-assembled computers were “supplied” by Microsoft “from the United States.”

Regarding the first issue, it was crucial to AT & T that it convince the Court that the Windows object code encoded on the master disk was a component that Microsoft had “supplied” from the United States. This argument was essential because “[i]f the relevant components [were] the copies of Windows actually installed on the foreign[-made] computers, *127 [as opposed to the object code contained on the master

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113 Microsoft, 414 F.3d. at 1371.
114 See Petition for Writ of Certiorari, Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746 (No. 05-1056). See also Brief in Opposition to Petition for a Writ of Certiorari, Microsoft, 127 S.Ct. 1746 (No. 05-1056).
117 Id. at 1753-54. The Supreme Court asserted that its analysis, while focused entirely on 35 U.S.C. § 271(f)(1), is equally applicable to 35 U.S.C. § 271(f)(2), and further, that the Court’s choice between the two paragraphs did not affect its analysis of the legal issues involved. Id. at 1757 n.16. Justice Stevens in his dissent, however, suggested that the outcome of the case turned on whether the Court applied § 271(f)(1) or § 271(f)(2) and that § 271(f)(2) best supported AT & T’s position. Id. at 1762. See infra p. 20.
118 Microsoft, 127 S.Ct. at 1753-54.
119 Id. at 1754.
disks,] AT & T could not persuasively argue that those components, though generated abroad, were ‘supplie[d] ... from the United States’’ as required by § 271(f).

The Court began its analysis of whether software qualifies as a component under § 271(f) by interpreting the terms of § 271(f) “in accordance with [their] ordinary or natural meaning.” The Court held that “component” meant “‘a constituent part,’ ‘element,’ or ‘ingredient.’” The Court concluded Windows object code detached from a computer-readable medium such as a CD-ROM could not be “combined” with other components to form AT & T’s patented speech-processing computer. Because the object code, the abstract set of instructions encoded on the golden master disks, was “uncombinable,” it could not qualify as a component under § 271(f). The Court analogized the Windows object code contained on the disks to a “blueprint” that is not itself a component of any patented device, but instead a precise set of instructions for the configuration of a device.

Contrary to the Court’s opinion on the first issue, a strong argument can be made that the Windows object code at issue in Microsoft is “combinable” within the ordinary meaning of the term. From the Microsoft facts, to make AT & T’s speech-processing computer all that is needed is a computer and a software program capable of instructing the

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120 Id. In light of the Supreme Court’s reasoning, Judge Rader’s dissent in the district court below makes sense only if he, while agreeing with the court of appeals that software could qualify as a component under § 271(f), did not find that software in the abstract unattached to a physical medium could also qualify as a component. See AT & T Corp. v. Microsoft Corp., 414 F.3d 1366, 1372-76 (Fed. Cir. 2005).

121 Microsoft, 127 S.Ct. at 1755 (quoting FDIC v. Meyer, 510 U.S. 471, 476 (1994) (addressing whether a constitutional due process tort claim was “cognizable” under the jurisdictional grant of the Federal Tort Claims Act necessarily called upon the Court to define the term “cognizable” in the context of the statute) (internal quotation marks omitted)).

122 Microsoft, 127 S.Ct. at 1755 (quoting WEBSTER’S NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE 466 (3d ed. 1981)).

123 Microsoft, 127 S.Ct. at 1755.

124 Id.

125 Id. See supra text accompanying notes 66-69.

126 See THE RANDOM HOUSE DICTIONARY OF THE ENGLISH LANGUAGE 408 (2d ed. 1987) (defining “combine” as “to bring into or join in a close union or whole; unite”).

8 Chi.-Kent J. Intell. Prop. 111
computer to process speech in a manner than “practices” AT & T’s patent. The Court reasoned that because a hard drive or a CD-ROM containing the appropriate software may be “combined” with a computer to make AT & T’s patented invention, the hard drive or CD-ROM with the software contained therein is a component within the meaning of § 271(f). However, it seems an empty hard drive may be “combined” with the appropriate software object code transferred from a CD-ROM or electronic transmission and thereafter “combined” with a computer to make AT & T’s patented invention. Therefore, Windows object code alone seems to conform to the Court’s definition of “component” as something “amenable to ‘combination.’”

Further, the language of § 271(f) precludes applying the term “component” to object code not because object code is “uncombinable,” as the Court asserted, but because it is intangible. Courts should interpret Section 271(f) as requiring tangible rather than intangible components for two reasons. First, Congress enacted § 271(f) “so that the DeepSouth Supreme Court case would be decided differently in the future.” The components at issue in DeepSouth Packing Co. v. Laitram Corp. were all of the tangible parts needed to assemble a shrimp-deveining machine that DeepSouth had shipped abroad for assembly.

127 See supra notes 71-73 and accompanying text.
128 See supra p. 17.
129 Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1755 (2007).
130 Id.
131 S.1535, 98th Cong. § 1, at 22 (1983) (statement of Secretary Mossinghoff, Assistant Secretary and Commissioner of Patents and Trademarks, Patent and Trademark Office)
132 See supra pp. 4-5. Granted, 35 U.S.C. § 271(f) was not exactly tailored to reverse DeepSouth. If that was the case, Congress would not have enacted § 271(f)(2), which applies where there is only one component at issue that is not a “staple” article or commodity of commerce. See supra note 38.
133 See supra note 32.
Second, the definition of “component” as ‘a constituent part,’ ‘element,’ or ‘ingredient,’ 134 implies that the term “component” encompasses tangible and not intangible components. If Congress had not intended that the term have an ordinary or natural meaning, it *129 would have expressed this intent in the language of the statute. Further, the legislative history indicates that Congress did not consider applying § 271(f) to intangibles. 135 The Court reasoned, “[i]n a case like this, in which Congress has not plainly marked our course, we must be circumspect in construing the scope of rights created by a legislative enactment which never contemplated such a calculus of interests.” 136

Regarding the second issue of whether any components of the foreign assembled computers were “supply[ed]” by Microsoft “from the United States,” the Supreme Court agreed with Judge Rader, dissenter to the court of appeal’s opinion below, and held that the “act of copying” was not “subsumed in the act of ‘supplying’” under § 271(f). 137 The Court held that the copies of Windows installed on foreign-made computers were not “supplied” from the United States within the meaning of § 271(f). 138 Rather, third parties abroad made these copies from master disks or electronic transmissions supplied by Microsoft from the United States. 139 Justices Alito, Thomas, and Breyer, who concurred in the judgment, emphasized that “because no physical object originating in the United States was combined with the foreign-made computers, there was no violation of § 271(f).” 140 Further, although the court of appeals noted how easily one could copy software abroad

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134 See supra note 122 and accompanying text.
137 Microsoft, 127 S.Ct. at 1756-57 (quoting AT & T Corp. v. Microsoft Corp., 414 F.3d 1366, 1374 (Fed. Cir. 2005) (Judge Rader, dissenting)).
138 Microsoft, 127 S.Ct. at 1757.
139 Id.
140 Id. at 1762.
from a few master disks, the Court found nothing in the text of § 271(f) addressing the relevance of the ease of copying software.\textsuperscript{141}

AT & T argued that interpreting § 271 to apply only to tangible copies of Windows actually sent from the United States created a “loophole” for software companies like Microsoft \textsuperscript{*130} to avoid the cost of licensing the right to use patented technology, such as AT & T’s speech processor.\textsuperscript{142} The Court acknowledged the existence of this “loophole,” but concluded it “is properly left for Congress to consider, and to close if it finds such action warranted.”\textsuperscript{143}

Justice Stevens dissented from the opinion of the Court: He believed that the decision of the court of appeals was “more faithful to the intent of the Congress that enacted § 271(f) than a reversal.”\textsuperscript{144} Departing from the majority’s view that it is of no consequence whether (f)(1) or (f)(2) applies, Justice Stevens asserted that (f)(2) supported a judgment in favor of AT & T.\textsuperscript{145} Under (f)(2), the export of a special knife for use in a deveining machine that had no use other than as a part of that machine would constitute infringement.\textsuperscript{146} Justice Stevens analogized one of Microsoft’s golden master disks to “an inventory of such knives to be warehoused until used to complete the assembly of an infringing machine.”\textsuperscript{147}

Justice Stevens’ “inventory of knives” analogy would be more appropriate if the golden master disk contained many copies of Windows, one for each computer manufactured abroad by the recipient of the golden master. However, the golden master

\textsuperscript{141} Id. at 1759-60.
\textsuperscript{142} Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1759 (2007).
\textsuperscript{143} Id.
\textsuperscript{144} Id. at 1762
\textsuperscript{145} Id. at 1762-63.
\textsuperscript{146} Id.
\textsuperscript{147} Id. at 1763
disks at issue, contained only one copy of Windows--no copies were removed from the golden master disks and installed on the computers made abroad.\textsuperscript{148} Rather, the copy on the master disk was duplicated and the duplicated copies were installed on computers made abroad.\textsuperscript{149}

Justice Stevens also compared the Windows object code to an “ingredient,”\textsuperscript{150} in contrast to the majority, which compared the Windows object code to a “blueprint.”\textsuperscript{151} The majority held $^\textsuperscript{131}$ that Windows object code was not a component under § 271(f) because software object code is like a “blueprint” that is “uncombinable” with other components to make the patented invention.\textsuperscript{152} Arguably, object code is a hybrid. In one sense, object code is instructions, in another sense, it is a component. Windows object code is like a set of instructions or a blueprint in that the code tells the computer what functions to perform.\textsuperscript{153} But unlike the instructions at issue in \textit{Pellegrini v. Analog Devices, Inc.},\textsuperscript{154} the Windows object code becomes a part of the invention.\textsuperscript{155} Thus, the Court should have held that while software object code is “combinable,” it is not a component because § 271(f) does not apply to intangibles as parts of a patented invention.\textsuperscript{156}

To illustrate, object code is like a song that a player piano or music box plays.\textsuperscript{157} A player piano has a rotating cylinder (a roller), through which air blows, and a set of holes

\textsuperscript{148} \textit{See supra} pp. 12-13.
\textsuperscript{149} \textit{See id.}
\textsuperscript{150} \textit{See Microsoft Corp. v. AT & T Corp.}, 127 S.Ct. 1746, 1763 (2007).
\textsuperscript{151} \textit{See supra} p. 17.
\textsuperscript{152} \textit{See id.}
\textsuperscript{153} \textit{See Microsoft}, 127 S.Ct. at 1755.
\textsuperscript{154} \textit{See supra} p. 10.
\textsuperscript{155} \textit{Microsoft}, 127 S.Ct. at 1755. “Software’s instructions ... are contained in and continuously performed by a computer.” \textit{Id.}
\textsuperscript{156} \textit{See supra} p. 18.
\textsuperscript{157} \textit{See Microsoft}, 127 S.Ct. at 1756 n. 12. Justice Ginsberg suggested an analogy along these lines. \textit{Id.} Readers may find an analogy to a mechanical music box more familiar. In the case of a music box, the song is reflected physically by pins protruding from a rotating cylinder, which strike metal combs that vibrate and produce the melody. \textit{Louis Bloomfield, How Everything Works: Making Physics Out of the Ordinary} 313-14 (John Wiley & Sons, Inc.) (2007).
on the roller, where each hole corresponds to a particular piano key. Each note sounds when air passes through its corresponding hole, actuating the piano key.\textsuperscript{158} Without the roller’s physical manifestation of the song (the unique hole arrangement), the player piano would remain silent. Similarly, without the Windows object code installed on the hard drive, a computer is incapable of functioning as AT & T’s patented speech processor.\textsuperscript{159} Both the song and the object code are physically incorporated into the player piano and the computer respectively; in the case of the computer, the \textsuperscript{*132}physical incorporation is in the form of magnetizing particles on tiny patches of the surface of the hard drive.\textsuperscript{160} Also, both are “combined” with other parts to form the two devices.\textsuperscript{161} Unlike the roller itself, which is a tangible part to the player piano, like the gears and levers of the shrimp-deveining machines at issue in \textit{Deepsouth Packing Co. v. Laitram Corp.},\textsuperscript{162} the song and the object code are intangibles.\textsuperscript{163} Where the legislative history endorses applying § 271(f) to the former, it is silent on applying § 271(f) to the latter.\textsuperscript{164}

IV. The Need for a Congressional Response

A. Section 271(f) Ceases to Have Any Meaning for the Software Industry

The Supreme Court’s interpretation of § 271(f) to exclude intangible software such as Windows object code as a component provides limited protections for the U.S. software industry.\textsuperscript{165} The Court’s holding allows Microsoft and other U.S.-based software companies to avoid liability under § 271(f) by supplying software abroad for copying and

\textsuperscript{158} See \textit{THE RANDOM HOUSE DICTIONARY}, \textit{supra} note 124, at 1463, 1485.
\textsuperscript{159} See \textit{supra} text accompanying note 73.
\textsuperscript{160} \textit{BLOOMFIELD}, \textit{supra} note 157, at 397-98.
\textsuperscript{161} See \textit{supra} pp. 17-18.
\textsuperscript{162} See \textit{supra} pp. 4-5.
\textsuperscript{163} See Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1760-61 (2007).
\textsuperscript{164} See \textit{supra} note 135 and accompanying text.
\textsuperscript{165} Brief for the Respondent, \textit{supra} note 70, at 39.
installation.\textsuperscript{166}

Section 271(f), as interpreted by the Court in Microsoft, does not preclude a company from shipping disks to foreign manufacturers that are later physically incorporated into the individual computers manufactured abroad.\textsuperscript{167} When a computer program is downloaded from a disk onto a computer’s hard drive, a copy is generated.\textsuperscript{168} Only in exceptional cases would an end user run a computer program directly from the disk (supplied from the United States) physically installed in the computer rather than download the program onto the hard drive before *133 using the program.\textsuperscript{169} The copy of the program used in almost every case would therefore be the copy made abroad during the downloading process.\textsuperscript{170} If avoiding liability under § 271(f) rests on this step, surely Microsoft and other software companies would require foreign computer users to download all software programs before use.\textsuperscript{171}

Additionally, § 271(f), as interpreted in Microsoft, does not prevent software companies from sending every user abroad a hard drive with the software program at issue already installed on it.\textsuperscript{172} Before a computer can actually run the software program, it must “call up the object code from a storage medium ... and incorporate it into arrangements of electrical charges in its RAM.”\textsuperscript{173} There would still be no liability under § 271(f) pursuant to Microsoft because the copy of the software program installed on the RAM would be a separate copy distinct from the copy of the software program stored on the hard drive.

\textsuperscript{166} Id. at 40.
\textsuperscript{167} Id.
\textsuperscript{168} Id.
\textsuperscript{169} Id.
\textsuperscript{170} Id.
\textsuperscript{171} Brief for the Respondent, supra note 70, at 39.
\textsuperscript{172} Id.
\textsuperscript{173} Id. at 39-40 (citing E. GARRISON WALTERS, THE ESSENTIAL GUIDE TO COMPUTING, 41 (2001)).
End users arguably would not even use the same copy of the software supplied from the United States if Microsoft sent fully assembled computers that were running the Windows program from their hard drives upon arrival overseas. *Microsoft* therefore results in “treat[ing] the software industry differently from all other industries by precluding any meaningful application—indeed any application at all—of Section 271(f) to the supply of software components abroad.”

*134 B. Harm to Certain Industries and Encouragement of Offshoring*

Not applying § 271(f) to the software industry gives Microsoft and other “new economy” software companies an advantage over “traditional” electronics companies. “New economy” software companies like Microsoft arguably benefit from software piracy because the existence of pirated software increases demand for applications that run on the pirated software. For Microsoft in particular, the more users of Windows, the larger Microsoft’s network monopoly for its operating system.

Additionally, the Supreme Court’s *Microsoft* decision will likely harm the U.S. biotechnology industry. Copies of software are analogous to copies of genetic code.
While it is not possible to reverse-engineer genetic code (as it is computer software) through the use of instructions, it is extremely cost-effective for a biotechnology competitor to commercialize genetically modified organisms patented in the United States abroad using one sample of the patented genetic material that would itself remain unchanged when copied abroad, very much like the Windows object code at issue in *Microsoft.* If courts will not apply § 271(f) to intangible goods, biotechnology entrepreneurs are exposed to widespread copying of their inventions for sale abroad. In turn, small biotechnology entrepreneurs may have trouble obtaining funding, perhaps causing the United States to lose its preeminence in the biotechnology industry.

One of the purposes of enacting § 271(f) was to discourage offshore manufacture that “is [both] disadvantageous to an innovative economy ... and is unfair to inventors.” However, the Supreme Court’s *Microsoft* decision arguably encourages offshore manufacturing, at least in the software industry. Thus, certain American jobs may be at risk. End-product manufacturers now have the incentive to locate their operations abroad to exploit the “software exception” to § 271(f), taking American assembly jobs with them.

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182 *Id.*
183 *Id.* at 16.
184 *Id.*
185 S.1535, 98th Cong. § 1, at 146 (1983) (statement of John E. Maurer, General Consulting Attorney, Monsanto Co.).
187 *Briefic* for the Respondent, *supra* note 70, at 49.
188 *Id.*
C. Questions Left Unanswered by the Supreme Court in Microsoft

The Microsoft Court left a handful of unresolved questions for future software infringement cases.\footnote{See generally Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746 (2007).} For example, the Court did not address whether software in the abstract, or any other intangible, could ever constitute a component of a patented invention under § 271(f).\footnote{Id. at 1756 n. 13.} However, the Court speculated that if an intangible qualified as a patented invention, the invention’s components might also be intangible.\footnote{Id. Patents have been granted on certain kinds of intangible inventions, such as business methods and designs, but courts have thus far refused to extend § 271(f) to method and design patents. See supra notes 51-52 and accompanying text.} The patented invention at issue in Microsoft was tangible, a computer that processed speech in a certain way.\footnote{Microsoft, 127 S.Ct. at 1759 n.13.} Given the Court’s \*136 conclusion that Windows object code was not a component because it was “uncombinable,”\footnote{See supra p. 17.} it seems unlikely that software in the abstract could ever qualify as a component. According to the Court, “an idea without physical embodiment . . . does not match § 271(f)’s categorization: ‘components’ amenable to ‘combination.’”\footnote{Microsoft, 127 S.Ct. at 1755.} And so, it seems that all software object code, even object code that is part of an intangible invention, would be outside the scope of what constitutes a “component” under § 271(f).\footnote{See generally Microsoft, 127 S.Ct. 1746.}

The Court also did not address the issue of whether Microsoft would be liable if the disks containing Windows shipped from the United States were used to directly install Windows on each foreign-made computer.\footnote{Id. at 1757 n.14.} Justices Alito, Thomas, and Breyer, who concurred with the opinion of the Court, asserted that had the disks shipped from the
United States been used to directly install Windows on each computer made abroad, Microsoft would be liable under § 271(f). They maintained that a foreign-made computer becomes an infringing device when enough of the software code is installed on it so as to permit the computer to function as the patented invention. Further, they reasoned that a computer continues to be an infringing device after installing the software code and removing the installation device, such as a CD-ROM, because the software code remains on the hard drive and the computer is still permitted to function as the patented invention.

The position of Justices Alito, Thomas, and Breyer on this unresolved issue is at odds with the Court’s majority opinion. To illustrate, when Microsoft installs Windows on a foreign-made computer, a copy is generated and stored on the computer’s hard drive. The computer utilizes this copy of Windows on the hard drive and not the copy of Windows on the CD-ROM supplied from the United States to process speech in a manner that “practices” AT & T’s patent. Because the copy of Windows incorporated into the computer abroad is different from the copy of Windows contained on the CD-ROM supplied from the United States, the Microsoft Court’s holding precludes a finding of infringement under § 271(f) here as well.

A third remaining question is whether source code, the human readable version of object code that has yet to be put through a compiler, qualifies as a component under §

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197 See id. at 1761-62.
198 Id. at 1761.
199 Id. at 1761-62.
200 Id.
201 See supra p. 19.
202 See id.
203 See id.
204 See id.
271(f). Assuming that the software source code was sent to computer manufacturers abroad, compiled, and then installed on foreign-manufactured computers the component installed on the computers, the object code, would be different from the component supplied from the United States, the source code. As a result there would be no liability under § 271(f).

D. Legislative Response Needed

The Microsoft Supreme Court construed the term “component” to mean a tangible copy of the Windows object code, such as the golden master CD-ROM Microsoft supplied from the United States, and left Congress to amend § 271(f) to define “component” differently. At present, Congress has not changed U.S. patent law in response to Microsoft; the Patent Reform Act of 2007, which passed in the House of Representatives on September 7, 2007, and has been placed on the Senate Legislative Calendar, leaves § 271(f) untouched. For now, the term “component” in the context of § 271(f) will not apply to software object code unattached to physical media.

In his dissent to Microsoft, Justice Stevens asserted: “if a disk with software inscribed on it is a ‘component,’ I find it difficult to understand why the most important ingredient of that component is not also a component.” Perhaps Justice Stevens is correct.

Congress responded to the Supreme Court’s Deepsouth Packing Co. v. Laitram

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205 The district court in Eolas Techs., Inc. v. Microsoft Corp. found the source code contained on Microsoft’s golden master not to be intangible information, but instead “a real and substantial part of the final product.” See supra note 62.
206 Microsoft Corp. v. AT & T Corp., 127 S.Ct. 1746, 1759-60 (2007).
208 Brief for the Respondent, supra note 70, at 37 (citing Patent Reform Act of 2006, S. 3838, 109th Cong. § 5(f) (2006)). This is in spite of the fact that Microsoft “[w]as actively lobbying for legislation that, in its most aggressive form, would eliminate Section 271(f) outright.” Brief for the Respondent, supra note 70, at 37.
209 Microsoft, 127 S.Ct. at 1763.
Corporation decision by enacting section 271(f).\textsuperscript{210} *Deepsouth* concerned the tangible parts to a mechanical invention, not the intangible components of a software-based invention.\textsuperscript{211} While § 271(f) was not written so narrowly as to only reverse *Deepsouth*,\textsuperscript{212} the statute was not written so broadly as to cover intangibles such as the Windows object code at issue in *Microsoft*.\textsuperscript{213} However, the same policy behind enacting § 271(f) applies here--the same “subterfuge” of the spirit behind the patent system exists in the software context today as it existed after *Deepsouth*. Senator Thurmond, who submitted the Committee on the Judiciary’s Report on The Patent Law Amendments of 1984, asserted that “[§ 271(f)] is needed to help maintain a climate in the United States conducive to invention, innovation, and investment[;] [p]ermitting the subterfuge which is allowed under the *Deepsouth* interpretation of the Patent Act weakens the confidence in patents among businesses and investors.”\textsuperscript{214} For this reason, this Note proposes a legislative response to render *Microsoft* mute as it applies to the supply of software for copying and installation abroad.

\*139 Congress should amend § 271(f) by adding a new paragraph, (f)(3), to read “for purposes of this section, the term ‘component’ includes intangible software components even if such components are staple articles or commodities of commerce suitable for substantial non-infringing use.” In doing so, Congress would respond to the holding of the Supreme Court in *Microsoft* just as it had responded to the holding of the Court in *Deepsouth*.\textsuperscript{215} As in 1984, amending § 271(f) as suggested above “would correct a number of troublesome aspects of the patent laws and thereby enhance the benefits of the

\begin{itemize}
\item \textsuperscript{210} See supra note 22.
\item \textsuperscript{211} See supra pp. 4-5.
\item \textsuperscript{212} See supra note 132 and accompanying text.
\item \textsuperscript{213} See supra p. 18.
\item \textsuperscript{214} S. REP. NO. 98-663, at 3 (1984).
\item \textsuperscript{215} See id. at 6.
\end{itemize}

8 Chi.-Kent J. Intell. Prop. 111
V. Conclusion

_Microsoft_ was a landmark case in American patent law. The question before the Supreme Court was whether Microsoft’s liability for patent infringement extended to computers made abroad that were loaded with Windows software copied abroad from a master disk or an electronic transmission supplied by Microsoft from the United States. The Court held that it did not. According to the Court, Microsoft’s Windows object code, detached from a computer-readable medium like a CD-ROM, was “uncombinable” and therefore not a component within the meaning of 35 U.S.C. § 271(f). Thus, because Microsoft supplied no component from the United States, to be combined with the computers made abroad, it did not violate § 271(f).

The plain meaning of § 271(f) as well as the legislative history precludes applying the term “component” to intangibles. Windows object code is perhaps most like a song a player piano or music box plays. Object code, like a player piano song, when physically incorporated into a device, instructs the device on what functions to perform. No one would argue that the roller inside the player piano is not a component of the player piano under § 271(f). The song and the object code differ from the roller in that the song and the object code are intangibles.

The Court’s holding in _Microsoft_ arguably exposes a “loophole” for U.S. software manufacturers to avoid the cost of obtaining licenses for software technologies they exploit.

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216 Statement of Secretary Mossinghoff, _supra_ note 131, at 24.
217 See generally _Microsoft Corp. v. AT & T Corp._, 127 S.Ct. 1746 (2007).
218 See _supra_ p. 16.
219 See _supra_ p. 17.
220 See _id._
abroad. For now, software object code remains beyond the protection of American patent law. Arguably, the Court’s holding in *Microsoft* precludes any application of § 271(f) to U.S. software manufacturers supplying software for use abroad. Congress should amend § 271(f) to treat intangible software code as a component protected from infringement if supplied from the United States for copying abroad. Only then will American creators of intellectual property be assured of meaningful global protection for their software technologies, eliminating the deleterious consequences to innovation that could result should *Microsoft* remain as precedent.

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221 See *Microsoft Corp. v. AT & T Corp.*, 127 S.Ct. 1746 (2007).
222 *Id.*